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09/845,449	04/30/2001	Tomio Kondou	64859 CCD	2494

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EXAMINER

NOTE, JANIS L

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/845,449

Applicant(s)

KONDOU ET AL.

Examiner

Janis L. Dote

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2005.
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 25 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-7 and 25 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 30 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

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1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on Mar. 31, 2005, has been entered.

2. The examiner acknowledges the amendments filed on Mar. 31, 2005, to claims 1 and 25. Claims 1-7 and 25 are pending.

3. The rejection of claim 25 under 35 U.S.C. 112, second paragraph, and the objection to claim 25, set forth in the office action mailed on Oct. 6, 2004, paragraphs 5 and 6, respectively, have been withdrawn in response to the amendment filed on Mar. 31, 2005, to claim 25.

The rejections under 35 U.S.C. 103(a) of claims 1-3, 6, and 7 over US 5,805,969 (Elsermans) combined with US 6,020,100 (Iwasaki), over Iwasaki combined with other cited references, over US 4,593,991 (Aoki) combined with Iwasaki, over US 5,442,428 (Takahashi) combined with Iwasaki, and over US 6,188,418 (Hata) combined with Iwasaki and the other cited

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references, set forth in the office action mailed on Oct. 6, 2004, paragraphs 8, 9, 11, and 13, have been withdrawn in response to applicants' comments regarding the teachings in Iwasaki in the response filed on Mar. 31, 2005, page 8, line 21, to page 9, line 23. Applicants have shown that the Iwasaki color toners do not have a melt viscosity as recited in the instant claims, and that the Iwasaki, alone or combined with the other cited references, does not teach or suggest color toners having the melt viscosity recited in the instant claims.

4. The pigments "Naphthol Carmine F6B" and "Naphthol Carmine FBB" recited in instant claims 1 and 25 are defined by the chemical formulas (4) and (5), respectively, at page 8, lines 1-10, of the specification.

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1, 2, and 4-7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written

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description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Instant claim 1 recites that the color toners, i.e., cyan color toner, magenta color toner, and yellow color toner, have a melt viscosity "not greater than 125 mPas·sec at 140°C."

The originally filed specification does not provide an adequate written description of said color toners. The originally filed specification at page 4, lines 11-13, and at page 9, lines 20-22, discloses that the each of the yellow, magenta, or cyan toners preferably has a melt viscosity "not greater than 120 mPas·sec at 140°C." The originally filed specification does not disclose the melt viscosity range of "not greater than 125 mPas·sec at 140°C" recited in instant claim 1. The melt viscosity range recited in instant claim 1 is broader than the melt viscosity range disclosed in the originally filed specification, because it includes melt viscosities greater than 120 mPas·sec at 140°C, which are outside the scope of the originally disclosed range.

In the response filed on Mar. 31, 2005, page 6, lines 4-6, applicants assert that the disclosure in toner manufacturing

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example 3 at pages 26-29 of the originally filed specification provides support for the viscosity limitation recited in instant claim 1. However, the originally filed specification does not disclose that a color toner, i.e., yellow, magenta, or cyan toner, can have a melt viscosity of 125 mPas·sec, let alone "not greater than 125 mPas·sec," at 140°C as recited in instant claim 1. The originally filed specification at page 27, line 1, discloses that the black toner 3 in example 3 has a melt viscosity of 125 mPas·sec at 140°C, not a color toner, i.e., a yellow color toner, a magenta color toner, or a cyan color toner as recited in instant claim 1. The originally filed specification at page 27, line 23-24, page 28, lines 20-21, and page 29, line 16, discloses that yellow toner 3, magenta toner 3, and cyan toner 3 in example 3 have melt viscosities of 121, 123, and 122 mPas·sec, respectively, at 140°C. None of the color toners in example 3, i.e., the yellow, magenta, and cyan toners, have a melt viscosity 125 mPas·sec at 140°C as recited in instant claim 25. Furthermore, the particular yellow toner 3, magenta toner 3, and cyan toner 3 in example 3 do not provide antecedent basis for the yellow toner, the magenta toner, and the cyan toner broadly recited in instant claim 1 to have melt viscosities of 121, 122, or 123 mPas·sec at 140°C. The particular color toners in example 3 comprise a particular

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polyol (B) and a particular charge control agent of formula (7), where the components are present in particular amounts. Yellow toner 3 further comprises a particular benzimidazolone pigment of formula (2). The yellow toner, the magenta toner, and the cyan toner recited in instant claim 1 are broader than the particular yellow, magenta, and cyan toner in example 3, because they encompass toners that do not comprise the particular polyol (B) resin, the particular charge control agent of formula (7), or the particular benzimidazole pigment of formula (2).

7. Claims 1 and 25 are objected to because of the following informalities:

In claims 1 and 25, the misspelling "Benzamidazolone" should be corrected to read - benzimidazolone --.

Appropriate correction is required.

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. The verified English-language translation of the priority document, Japanese patent application No. 2000-133980, filed on Apr. 2, 2003, does not provide antecedent basis for the subject

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matter recited in instant claims 1, 2, and 4-7. The translation at page 1, lines 18-20, page 6, lines 3-5, and page 10, lines 21-23, discloses that the each of the yellow, magenta, or cyan toners preferably has a melt viscosity "not greater than 120 mPas·sec at 140°C." The translation does not disclose the melt viscosity range of "not greater than 125 mPas·sec at 140°C" recited in instant claim 1. The melt viscosity range recited in instant claim 1 is broader than the melt viscosity range disclosed in the translation, because it encompasses melt viscosities greater than 120 mPas·sec at 140°C, which are outside the scope of the originally disclosed range. For the reasons discussed in paragraph 6 above, example 3 in the translation does not provide an adequate written description of the melt viscosity range of "not greater than 125 mPas·sec at 140°C" recited in instant claim 1.

Thus, applicants have not perfected their claim for the benefit of foreign priority under 35 U.S.C. 119 for the subject matter recited in instant claims 1, 2, and 4-7. Accordingly, Japanese Patent 12-199982 (JP'982), which was published on Jul. 18, 2000, is prior art to the subject matter recited in instant claims 1, 2, and 4-7. Rejections based on JP'982 are set forth infra.

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10. Claims 1, 2, and 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,805,969 (Elsormans) combined with Japanese Patent 12-199982 (JP'982). See the USPTO translation of JP'982 for cites.

Elsormans discloses an image forming device and a method that meets the steps recited in instant claim 1, but for the particular color toners. Elsormans' method comprises the steps of: (1) developing electrostatic images on at least three image bearing members with a yellow toner, a magenta toner, and a cyan toner (see Fig. 1, image forming devices **A**, **B**, and **C**, col. 9, lines 44-52); (2) transferring in order the yellow, magenta, and cyan color toner images onto a web of paper to form a full color image (see Fig. 1, web of paper **12**, col. 9, lines 62-66, and col. 11, lines 27-36); (3) non-contact fixing the full color image on the web of paper with radiant energy (see Figs. 1 and 3, image-fixing station **16**, col. 8, lines 14-40, col. 9, line 67, col. 11, lines 61-67); and (4) modifying the fixed full color image with a finishing device to achieve a desired gloss (see Fig. 1, finishing station **17**, col. 9, line 67, and Fig. 3, finishing rollers **66** and **67**, col. 12, lines 1-11). The yellow color toner image is formed directly on the web of paper (i.e., the receiving material), thus satisfying the requirement that "the yellow color toner image has a position closer to the

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receiving material than any other color toner image" recited in instant claim 1. Elsermans does not limit the type of toner used in its method. Col. 5, lines 59-62.

JP'982 discloses a set of color toners that meets the limitations recited in instant claims 1, 2, and 4-7. The set comprises a yellow toner, a magenta toner, and a cyan toner, wherein each of the toners comprises a binder resin, a pigment, and a salicylic acid metal complex that meets the limitations recited in instant claims 6 and 7. See the translation, paragraph 0020-0022, 0039, and 0056-0062, Yellow, Magenta, and Cyan toners 1 and 2. The yellow toner comprises a benzimidazolone pigment. The magenta toner comprises either Naphthol Carmine F6B or a combination of Naphthol Carmine F6B and Naphthol Carmine FBB. The cyan toner comprises β -copper phthalocyanine pigment. Each of the toners has a melt viscosity that meets the viscosity recited in instant claim 1. Each color toner provides a color image having a haze factor as recited in instant claim 2. The binder resin in the color toners 2 is a polyol. JP'982 teaches that the polyol is the reaction product of an epoxy resin, a dihydric phenol, and either an adduct of dihydric phenol with an alkylene oxide or a glycidyl ether of an adduct of a dihydric phenol with an alkylene oxide. Translation, paragraphs 0028 and 0029. Said polyol resin meets

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the polyol resin recited in instant claims 4 and 5. JP'982 further discloses that its color toners are capable of producing a multi-color image having a satisfactorily balance in the red and blue fields, good color reproducibility, and good light resistance. Translation, paragraph 0004.

It would have been obvious for a person having ordinary skill in the art to use JP'982's color toners in Elsermans' image forming method, because that person would have had a reasonable expectation of successfully obtaining an image forming method that is capable of providing full color images on a receiving material with a desired gloss and having the benefits disclosed by JP'982.

11. Claims 1, 2, and 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,593,991 (Aoki) combined with US 5,521,688 (Moser) and JP'982. See the USPTO translation of JP'982 for cites.

Aoki discloses a method of forming a full color image comprising the steps recited in instant claim 1, but for the non-contacting fixing step and the color toners. Aoki's method comprises the steps of: (1) developing an electrostatic image on an image bearing member with a yellow toner; (2) transferring the yellow toner image onto a receiving material; (3) repeating

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steps (1) and (2) using in order the magenta and cyan toners to form a full color toner image on the receiving material; and (4) fixing the full color toner image on the receiving material. Fig. 1, and col. 2, line 28, to col. 3, line 5, and col. 4, lines 8-30. The yellow color toner image is formed directly on the receiving material, thus satisfying the requirement that "the yellow color toner image has a position closer to the receiving material than any other color toner image" recited in instant claim 1. Aoki does not limit the type of fixing device used. Col. 3, lines 3-5.

Moser discloses a fixing method and apparatus for fixing color images on a receiving material. The method comprises the steps of non-contact fixing the color images on a receiving material by heating the member in an oven 76, and passing the fixed color images through a nip 90 formed by a pair of glossing rolls 78 and 80 to produce a desired uniform gloss in the color images. Col. 5, lines 27-61, and Fig. 1. Moser discloses that said method and fixing apparatus provide fixed color images that exhibit uniform gloss and satisfactory color saturation properties. Col. 1, lines 5-9. Moser discloses that his method and fixing apparatus can be used in a wide variety of printing methods and machines. Col. 4, lines 1-5. According to Moser, the glossing rollers are operated at substantially lower

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temperatures than conventional fusing rollers, which results in longer life and reliability compared to conventional fusing rollers. Col. 1, lines 57-61, and col. 3, lines 32-35. Moser also discloses that the glossing rollers are significantly smaller in size than conventional heated fusing rollers, resulting in cost savings. Col. 3, lines 36-40.

It would have been obvious for a person having ordinary skill in the art to use Moser's method of fixing color images to the receiving member in the method disclosed by Aoki, because that person would have had a reasonable expectation of successfully obtaining a cost-effective and reliable image forming method that can be used repeatedly for a long time and is capable of proving full color images having satisfactory color saturation properties and a desired uniform gloss.

Neither Aoki nor Moser limit the type of color toners used.

JP'982 discloses color toners that meet the toner compositional limitations recited in instant claims 1, 2, and 4-7, as discussed in paragraph 10 above, which is incorporated herein by reference. JP'982 further discloses that its color toners are capable of producing a multi-color image having a satisfactorily balance in the red and blue fields, as well as good color reproducibility and good light resistance. Translation, paragraph 0004.

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It would have been obvious for a person having ordinary skill in the art to use JP'982's color toners in the image forming method rendered obvious over the combined teachings of Aoki and Moser, because that person would have had a reasonable expectation of successfully obtaining a cost effective and reliable image forming method that is capable of providing full color images having the benefits disclosed by JP'982.

12. Claims 1, 2, and 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,442,428 (Takahashi) combined with Moser and JP'982. See the USPTO translation of JP'982 for cites.

Takahashi discloses a method of forming a full color image comprising the steps recited in instant claim 1, but for the non-contacting fixing step and the color toners. Takahashi's method comprises the steps of: (1) developing an electrostatic image on an image bearing member with a cyan toner; (2) transferring the cyan toner image onto an intermediate transfer medium; (3) repeating steps (1) and (2) using in order the magenta and yellow toners to form a full color toner image on the transfer medium; (4) transferring the full color image on the intermediate transfer medium to a receiving material; and (5) fixing the full color toner image on the receiving material.

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Fig. 2, and col. 3, line 47, to col. 5, line 53. Because the yellow color toner image is last one formed on the intermediate transfer medium, it forms the image closest to the receiving material. Thus, it meets the limitation recited in instant claim 1.

Moser discloses a non-contact fixing method and apparatus for fixing color images on a receiving material. Moser discloses that said method and fixing apparatus provide fixed color images that exhibit uniform gloss and satisfactory color saturation properties. Moser also discloses the benefits of using said method and apparatus compared to conventional fixing rollers. The discussion of Moser in paragraph 11 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art to use Moser's method of fixing color images to the receiving member in the method disclosed by Takahashi, because that person would have had a reasonable expectation of successfully obtaining a cost-effective and reliable image forming method that can be used repeatedly for a long time and is capable of proving full color images having satisfactory color saturation properties and a desired uniform gloss.

Neither Takahashi nor Moser limit the type of color toners used.

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JP'982 discloses color toners that meet the toner compositional limitations recited in instant claims 1, 2, and 4-7, as discussed in paragraph 10 above, which is incorporated herein by reference. JP'982 further discloses that its color toners are capable of producing a multi-color image having a satisfactorily balance in the red and blue fields, as well as good color reproducibility and good light resistance. Translation, paragraph 0004.

It would have been obvious for a person having ordinary skill in the art to use JP'982's color toners in the apparatus and image forming method rendered obvious over the combined teachings of Takahashi and Moser, because that person would have had a reasonable expectation of successfully obtaining a cost effective and reliable image forming method that is capable of providing full color images having the benefits disclosed by JP'982.

13. Claims 1, 2, and 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,188,418 B1 (Hata) combined with Moser and JP'982. See the USPTO translation of JP'982 for cites.

Hata discloses a method of forming a full color image comprising the steps recited in instant claim 1, but for the

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non-contacting fixing step and the color toners. Hata's method comprises the steps of: (1) developing electrostatic images on at least three image bearing members with a cyan toner, a magenta toner, and a yellow toner; (2) transferring in order the cyan, magenta, and yellow color toner images onto an intermediate transfer medium 7 to form a full color image; (3) transferring the full color image on the intermediate transfer medium to a receiving material; and (4) fixing the full color image on the receiving material. Fig. 1, and col. 7, lines 63-67, which discloses that the elements in Fig. 1 are the same as in Fig. 8 (which is described at col. 1, line 51, to col. 3, line 3), except that a "conveying drawing fluctuation period detector" 71 and a registration pattern generator 72 are added. Because the yellow color toner image is last color image formed on the intermediate transfer medium, it forms the color image closest to the receiving material. Thus, the limitation recited in instant claim 1 is met. Hata discloses that the fixing is accomplished by a pair of fixing rollers 12. See Fig. 1.

Moser discloses a non-contact fixing method and apparatus for fixing color images on a receiving material. Moser discloses that said method and fixing apparatus provide fixed color images that exhibit uniform gloss and satisfactory color

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saturation properties. Moser also discloses the benefits of using said method and apparatus compared to conventional fixing rollers. The discussion of Moser in paragraph 11 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art to use Moser's method of fixing color images to the receiving member in the method disclosed by Hata, because that person would have had a reasonable expectation of successfully obtaining a cost-effective and reliable image forming method that can be used repeatedly for a long time and is capable of proving full color images having satisfactory color saturation properties and a desired uniform gloss.

Neither Hata nor Moser limit the type of color toners used

JP'982 discloses color toners that meet the toner compositional limitations recited in instant claims 1, 2, and 4-7 as discussed in paragraph 10 above, which is incorporated herein by reference. JP'982 further discloses that its color toners are capable of producing a multi-color image having a satisfactorily balance in the red and blue fields, as well as good reproducibility and good light resistance. Translation, paragraph 0004.

It would have been obvious for a person having ordinary skill in the art to use JP'982's color toners in the image

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forming method rendered obvious over the combined teachings of Hata and Moser, because that person would have had a reasonable expectation of successfully obtaining a cost effective and reliable image forming method that is capable of providing full color images having the benefits disclosed by JP'982.

14. Claims 1 and 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elsermans combined with: (1) US 6,020,100 (Iwasaki), as evidenced by Chemical Abstracts (CA) Registry Numbers 77804-81-0 and 147-14-8, and Industrial Organic Pigments, Table 18 at page 289; and (2) US 5,554,478 (Kuramoto), as evidenced by applicants' admissions at page 9, lines 17-22, and at page 10, line 25, to page 11, line 4, of the instant specification.

Elsermans discloses a full-color image forming method and apparatus as described in paragraph 10 above, which is incorporated herein by reference.

As discussed in paragraph 10, supra, Elsermans does not disclose the particular color toners recited in the instant claims. However, Elsermans does not limit the type of toner used in his method or apparatus. Col. 5, lines 59-62.

Iwasaki discloses a set of color toners comprising a yellow toner, a magenta toner, and a cyan toner. The color toners

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comprise a binder resin and a zinc salicylic acid compound that meets the metal complex recited in instant claims 6 and 7. See Example 1 at cols. 10-11, Example 13 at cols. 18-19, and col. 9, lines 30-31. The yellow toner comprises Pigment Yellow 180, which is identified in CA Reg. No. 77804-81-0 as a benzimidazolone pigment. The cyan toner comprises Pigment Blue 15:2, which is identified in CA Reg. No. 147-14-8 as β -copper phthalocyanine. The magenta toner comprises Pigment Red 184. Pigment Red 184 is identified as a commercially available Naphthol AS pigment comprising a mixture of compounds having the chemical formulae disclosed in the instant specification, page 8, as Naphthol Carmine F6B. See Industrial Organic Pigments, Table 18 at page 289. Thus, Pigment Red 184 is Naphthol Carmine F6B. Iwasaki further teaches that the color toners can be used as a mono-component developer, or in a two-component developer comprising a carrier. Col. 9, lines 56-61. Iwasaki discloses that his color toners are capable of providing full color images with good color reproducibility and transparency. Col. 1, lines 53-57, and for example, Table 1, example 1.

It would have been obvious for a person having ordinary skill in the art to use the Iwasaki color toners in Elsermans' image forming method, because that person would have had a

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reasonable expectation of successfully obtaining an image forming method that is capable of providing full color images on a receiving material with a desired gloss and having the benefits disclosed by Iwasaki.

Iwasaki does not disclose that the toner has a melt viscosity as recited in the instant claims. Nor does Iwasaki disclose the use of a polyol resin as the toner binder resin as recited in instant claims 4 and 5. However, Iwasaki does not limit the type of toner binder resin used. Iwasaki discloses that it is desirable that the binder resin have particular melting characteristics so as to enable the toner, as a full color toner, to have good light transmission and good color reproducibility. Col. 9, lines 1-5.

Kuramoto discloses a polyol binder resin synthesized by reacting (1) an epoxy resin, (2) a dihydric phenol, and (3) either an alkylene oxide adduct of a dihydric phenol or a glycidyl ether thereof. See Synthesis Example 1 at col. 8. Said binder resin meets the polyol recited in instant claims 4 and 5. Kuramoto discloses that color toners comprising said binder resin provide full color images with excellent color reproducibility and uniform glossiness. Col. 3, lines 32-35, col. 4, lines 46-59, and col. 19, lines 14-17. Said color toners also can provide sharp full color images without

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muddiness on a transparent film. Col. 19, line 27-30. Thus, it appears that the Kuramoto polyol resin provides color toners capable of providing full color images having good light transmission and good color reproducibility, which are the properties desired by Iwasaki.

Kuramoto does not disclose that the polyol binder resin has a melt viscosity as recited in the instant claims. However, the instant specification at page 9, lines 17-22, discloses that in order to obtain color images having good reproducibility, it is important that each of the color toners melts and uniformly mixes with the other color toners when fixed. The instant specification also discloses that it is preferred that the toners have a melt viscosity not greater than 120 mPas·sec at 140°C. The instant specification at page 10, line 25, to page 11, line 4, discloses that in order to prepare toners having good color reproducibility, the toners preferably include as a binder resin a polyol resin as recited in instant claims 4 and 5. As discussed supra, Kuramoto discloses that toners comprising the Kuramoto polyol binder resin provide color images having good color reproducibility, the property sought by applicants. Accordingly, because the Kuramoto polyol binder resin is the same binder resin that is disclosed in the instant

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specification as having the melt viscosity recited in the instant claims, and that because it is taught that toners comprising the Kuramoto polyol binder resin provide color images having the property sought by applicants, it is reasonable to presume that toners comprising the Kuramoto polyol binder resin have a melt viscosity as recited in the instant claims. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Kuramoto, to use the Kuramoto polyol binder resin as the binder resin in the color toners disclosed by Iwasaki, such that the resultant color toners have a melt viscosity as recited in the instant claims and provide color images with good color reproducibility and uniform gloss. It also would have been obvious for that person to use the resultant color toners in the Elsermans image forming method. That person would have had a reasonable expectation of successfully obtaining an image forming method that is capable of providing full color images on a receiving material with a desired gloss and having the benefits disclosed by the combined teachings of Iwasaki and Kuramoto.

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15. Claims 1 and 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki combined with: (1) Moser; (2) Iwasaki, as evidenced by Chemical Abstracts (CA) Registry Numbers 77804-81-0 and 147-14-8, and Industrial Organic Pigments, Table 18 at page 289; and (3) Kuramoto, as evidenced by applicants' admissions.

The combined teachings of Aoki and Moser render obvious an image forming method as described in paragraph 11 above, which is incorporated herein by reference. As discussed in paragraph 11, neither Aoki nor Moser limit the type of color toners used.

The combined teachings of Iwasaki, as evidenced by the other cited references, and Kuramoto, as evidenced by applicants' admissions, render obvious color toners that meet the compositional limitations recited in instant claims 1 and 3-7. The discussion of Iwasaki and Kuramoto in paragraph 14 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art to use the color toners rendered obvious over the combined teachings of Iwasaki and Kuramoto, in the image forming method rendered obvious over the combined teachings of Aoki and Moser, because that person would have had a reasonable expectation of successfully obtaining a cost effective and

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reliable image forming method that is capable of providing full color images having the benefits disclosed by Iwasaki or by the combined teachings of Iwasaki and Kuramoto.

16. Claims 1 and 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi combined with: (1) Moser; (2) Iwasaki, as evidenced by Chemical Abstracts (CA) Registry Numbers 77804-81-0 and 147-14-8, and Industrial Organic Pigments, Table 18 at page 289; and (3) Kuramoto, as evidenced by applicants' admissions.

The combined teachings of Takahashi and Moser render obvious an image forming method as described in paragraph 12, which is incorporated herein by reference. As discussed in paragraph 12, neither Takahashi nor Moser limit the type of color toners used.

The combined teachings of Iwasaki and Kuramoto render obvious color toners that meet the compositional limitations recited in instant claims 1 and 3-7. The discussion of Iwasaki and Kuramoto in paragraph 14 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art to use the color toners rendered obvious over the combined teachings of Iwasaki and Kuramoto, in the apparatus

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and image forming method rendered obvious over the combined teachings of Takahashi and Moser, because that person would have had a reasonable expectation of successfully obtaining a cost effective and reliable image forming method that is capable of providing full color images having the benefits disclosed by Iwasaki or by the combined teachings of Iwasaki and Kuramoto.

17. Claims 1 and 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hata combined with: (1) Moser; (2) Iwasaki, as evidenced by Chemical Abstracts (CA) Registry Numbers 77804-81-0 and 147-14-8, and Industrial Organic Pigments, Table 18 at page 289; and Kuramoto, as evidenced by applicants' admissions.

The combined teachings of Hata and Moser render obvious an image forming method as described in paragraph 13, which is incorporated herein by reference. As discussed in paragraph 13, neither Hata nor Moser limit the type of color toners used.

The combined teachings of Iwasaki and Kuramoto render obvious color toners that meet the compositional limitations recited in instant claims 1 and 3-7. The discussion of Iwasaki and Kuramoto in paragraph 14 above is incorporated herein by reference.

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It would have been obvious for a person having ordinary skill in the art to use the color toners rendered obvious over the combined teachings of Iwasaki and Kuramoto, in the image forming method rendered obvious over the combined teachings of Hata and Moser, because that person would have had a reasonable expectation of successfully obtaining a cost effective and reliable image forming method that is capable of providing full color images having the benefits disclosed by Iwasaki or by the combined teachings of Iwasaki and Kuramoto.

18. Claims 1 and 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasaki, as evidenced by Chemical Abstracts (CA) Registry Numbers 77804-81-0 and 147-14-8, and Industrial Organic Pigments, Table 18 at page 289, combined with: (1) Kuramoto, as evidenced by applicants' admission; (2) US 3,874,892 (McInally); and (3) Moser.

The combined teachings of Iwasaki and Kuramoto render obvious color toners that meet the compositional limitations recited in instant claims 1 and 3-7. The discussion of Iwasaki and Kuramoto in paragraph 14 above is incorporated herein by reference.

Iwasaki exemplifies forming full color images with its set of three color toners in examples 1 and 13. See col. 12,

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lines 21-26, Table 1 at col. 12, example 1, col. 20, lines 6-9, and Table 3 at col. 20, example 13. Iwasaki discloses that a full color printer shown in Fig. 1 and described at cols. 13-14 was used to form the full color images using the three color toners. See col. 12, lines 21-26. The image forming method using the full color printer shown in Fig. 1 comprises the steps of: (1) developing an electrostatic image on an image bearing member 10 with a cyan toner; (2) transferring the cyan toner image onto an intermediate transfer belt 40; (3) repeating steps (1) and (2) using in order the magenta and yellow toners to form a full color toner image on the intermediate transfer belt; (4) transferring the full color image on the intermediate transfer belt 40 to a recording sheet S; and (5) fixing the full color toner image on the recording sheet S with a "belt-type" heat fixing device 70. Fig. 1, col. 13, line 12, to col. 14, line 6, and col. 14, lines 14-38.

Because the yellow color toner image is the last image formed on the intermediate transfer belt, it forms the image closest to the receiving material. Thus, the method of forming a full color image meets the requirement recited in instant claim 1 that "the yellow color toner image has a position closer to the receiving material than any other color toner image" recited in instant claim 1.

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Iwasaki does not disclose the use of "non-contact" fixing as recited in instant claim 1. As discussed previously, Iwasaki's method utilizes a "belt-type" heat fixing device 70. The "belt-type" heat fixing device 70 comprises a nip formed between a roller and a belt member wrapped around a roller. See Fig. 1. The fixing device 70 uses heat and pressure to fix a toner image to a recording material.

McInally discloses that hot or cold pressure fixing methods have been known to create problems of image offsetting, resolution degradation, and generally have failed to produce consistently acceptable fixed images. Col. 1, lines 34-38.

Moser discloses a fixing method for fixing toner images on a receiving material that does not involve hot pressure fixing. Moser discloses a non-contact fixing method and apparatus for fixing color images on a receiving material. Moser discloses that said method and fixing apparatus provide fixed color images that exhibit uniform gloss and satisfactory color saturation properties. Moser also discloses the benefits of using said method and apparatus compared to conventional fixing rollers. The discussion of Moser in paragraph 11 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art to use Moser's method of fixing color images to

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the recording sheet in the image forming method disclosed by Iwasaki with the color toners rendered obvious over the combined teachings of Iwasaki and Kuramoto. That person would have had a reasonable expectation of successfully obtaining a cost-effective and reliable image forming method that could be used repeatedly for a long time and that would be capable of providing full color images having satisfactory color saturation properties and a desired uniform gloss.

19. Applicants' arguments filed on Mar. 31, 2005, with respect to the rejections over Iwasaki in paragraphs 14-18 above have been fully considered but they are not persuasive.

Applicants assert that Iwasaki does not disclose or suggest a toner binder resin having a melt viscosity as recited in the instant claims.

However, in the rejections in paragraphs 14-18 above, Kuramoto was relied upon for a toner binder resin having a melt viscosity as recited in the instant claims. There is no evidence on the present record showing that the Kuramoto toner binder resin and toners comprising said binder resin do not have a melt viscosity outside the scope of the instant claims. The information from the internet is not probative because it does not address Kuramoto. As discussed in the rejection in

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paragraph 14 above, Iwasaki discloses that that it is desirable that the toner binder resin have particular melting characteristics to provide a full color toner having light transmission and good color reproducibility. Although Iwasaki discloses that to obtain these results it is desirable to have the binder resin have certain melt viscosities, Iwasaki does not require these melt viscosities. As discussed in paragraph 14 above, Kuramoto is concerned with the same toner properties as Iwasaki. Accordingly, for the reasons discussed in the rejections, the instantly claimed method is rendered obvious over the combined teachings in the prior art.

20. Claims 1-7 and 25 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 22, 24, 26, 28-41, 44, and 45 (as amended on Apr. 1, 2005) of copending Application No. 10/302,898 (Application'898) in view of Elsermans.

This is a provisional obviousness-type double patenting rejection.

Reference claim 40 recites a method of forming a color image comprising the steps of: (1) developing an electrostatic latent image with a combination of color toners comprising a yellow toner, a magenta toner, and a cyan toner, to form an

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image; (2) transferring the image or images onto a transfer paper; and fixing the images to form a color image. Each of the yellow, magenta, and cyan toners comprises a binder resin and a respective color pigment that is the same color pigments recited in the instant claim 1. Each of the toners has a melt viscosity not greater than about 120 mPas·sec at 140°C, which meets the viscosity limitation recited in instant claims 1, 3, and 25. The binder resin comprises a polyol resin having a polyoxyalkylene chain as a main chain. The binder resin meets the binder resin compositional limitation recited in instant claim 4 and 25.

Reference claim 40 does not recite that the toners have the particulars recited in instant claims 2, 4-7, and 25. However, reference claim 22 recites a combination of color toners as recited in reference claim 40, wherein the binder resin in each of the toners comprises a polyol resin having a polyoxyalkylene chain as a main chain. Reference claim 22 further recites that each of color toners provides fixed color images having a weight of 8 g/m². Reference claim 24, which depends from reference claim 22, requires that each of the fixed images have a haze factor not greater than 20%, which meets the limitations recited in instant claims 2 and 25. Reference claim 26, which depends from reference claim 22, requires that the polyol resin be

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obtained by the same components recited in instant claims 5 and 25. Reference claim 35, which depends from reference claim 33, which ultimately depends from reference claim 22, requires that the toners comprise an aromatic hydroxycarboxylic acid zinc salt that is within the limitations recited in instant claims 6, 7, and 25.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter recited in the reference claims of Application'898, to form a yellow toner image, a magenta toner image, and a cyan toner image that are within the compositional and physical limitations recited in the instant claims on a transfer paper to form a color image and to fix color image on the transfer paper, because that person would have had a reasonable expectation of successfully obtaining a fixed full color image.

The reference claims do not recite that the fixing step is a non-contact fixing step as recited in instant claim 1. Nor do the claims recite the particular arrangement of the toner layers on the transfer paper as recited in instant claim 1.

Elsermans discloses a full color image forming method which uses a image forming device as described in paragraph 10 above, which is incorporated herein by reference. Elsermans's method and device form a full color image wherein the yellow toner

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image is formed directly on the receiving material, which satisfies the particular layer arrangement recited in instant claim 1. The method and device also fix the full color image on the receiving material with a non-contact fixing step with radiant energy. According to Elsermans, its method and device provide toner images with modified finishes (e.g., gloss) in "a simple and convenient manner." Col. 1, lines 52-54. Moreover, Elsermans discloses disadvantages of using heated rollers for fixing. For example, if the temperature of the roller is too high, the toner is transferred from the receiving material to the surface of heated roller, which produces the effect of "ghost" images. Col. 7, lines 2-7. Moreover, "[a]fter a period of time the heated rollers may become subject to wear." Col. 7, lines 13-14. Disadvantageous surface effects can occur due to the contact of the heated rollers with the receiving material. Col. 7, lines 14-16. Elsermans discloses that because non-contact fixing occurs without contact with the receiving material, "calendaring effects are avoided." Col. 8, lines 30-32. "The use of a non-contacting fixing device leads to longer high quality lifetime than contacting devices." Col. 15, lines 37-40.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Elsermans, to form

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a full color image using the device disclosed by Elsermans in the method of forming a yellow toner image, a magenta toner image, and a cyan toner image rendered obvious over the subject matter recited in the reference claims of Application'898, such that the yellow toner image is formed directly on the transfer paper and that the full color image is fixed with a non-contacting radiant energy device as taught by Elsermans, because that person would have had a reasonable expectation of successfully obtaining a method that forms full color images with modified finishes as taught by Elsermans, without the disadvantages of using a heated roller fixing device.

Applicants' arguments filed Mar. 31, 2005, have been fully considered but they are not persuasive. Applicants assert that "[s]ince no patent has yet issued on application No. 10/302,898, it is believed unnecessary to submit a terminal disclaimer at this time."

Applicants' statement is not responsive to the rejection. Accordingly, the rejection stands.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be

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reached on (571) 272-1385. The central fax phone number is (703) 872-9306.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JLD

Apr. 16, 2005


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